What is claimed is:

1. A method for providing a simulation of conditions of bipedal locomotion for a human subject on a treadmill having a conveyor defining a velocity, comprising the steps of:

constraining the subject along a direction of motion of the treadmill;

measuring the magnitude of a force applied to the treadmill by the subject; and

controlling the velocity of the conveyor based, at least in part, upon the magnitude of the force applied to the treadmill.

2. The method of claim 1, wherein:

the velocity of the conveyor is controlled, at least in part, utilizing a haptic equation relating the force to the velocity.

3. The method of claim 2, wherein:

the haptic equation relates the velocity to a time integral of the force.

4. The method of claim 3, wherein:

the haptic equation relates the velocity to a time integral of a square of the velocity.

5. The method of claim 1, wherein:

the subject is constrained in forward and rearward directions.

6. An apparatus for simulating conditions of bipedal locomotion for a human subject, comprising:

a conveyor defining a velocity;

a force-measuring sensor;

a restraint operably coupled to the sensor to measure a force applied to the restraint by a human subject;

a controller configured to control the velocity of the conveyor based, at least in part, upon the force measured by the sensor.

7. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 6, including:

a sensor coupled to the controller and adapted to detect the position of a human subject on the conveyor.

8. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 6, wherein:

the sensor comprises a stereoscopic sensor adapted to detect the position of each leg of a human subject on the conveyor.

9. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 6, wherein:

the restraint comprises a harness adapted to fit around a waist of a human subject, and a tether connecting the harness to the apparatus.

10. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 6, wherein:

the restraint comprises a blocking dummy.

11. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 6, wherein:

the restraint comprises a handle configured to simulate a handle of a bob sled.

12. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 6, including:

an overhead support structure;

an overhead harness connected to the overhead structure and adapted to provide a lifting force on a human subject;

a powered winch adapted to raise and lower the overhead harness;

a sensor adapted to measure a force acting on the overhead harness; and wherein:

the controller is configured to actuate the winch to generate an upward force on a human subject.

13. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 12, wherein:

the apparatus defines a forward portion and a rearward portion; and

the restraint comprises a harness and a forward tether connecting the harness to the forward portion of the apparatus, and a rearward tether connecting the harness to the rearward portion of the apparatus.

14. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 6, including:

an electric motor coupled to the conveyor for moving the conveyor;

a brake coupled to the conveyor for exerting a braking force on the conveyor; and wherein:

the controller is configured to control the brake and motor based, at least in part, upon a haptic equation.

15. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 14, wherein:

the haptic equation comprises a sprint simulation.

16. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 14, wherein:

the haptic equation comprises a bob sled simulation.

17. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 16, wherein:

the controller controls the velocity based, at least in part, upon an equation that provides an isokinetic overspeed mode of operation.

18. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 16, wherein:

the controller controls the velocity based, at least in part, upon an equation that provides an isotonic overspeed mode of operation.

19. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 16, wherein:

the controller controls the velocity based, at least in part, upon an equation that provides a terminal velocity determination mode of operation.

20. The apparatus for simulating conditions of bi-pedal locomotion for a human subject of claim 14, including:

an input device coupled to the controller for inputting variables; and wherein:

the controller utilizes the variables and haptic equation to control the velocity of the conveyor.

21. An apparatus for simulating movement of a human subject, comprising:

a base;

a movable member mounted to the base, the movable member defining a velocity and receiving a force applied to the movable member by a human subject;

a force-generating device operably coupled to the movable member for applying a force to the movable member;

a sensor configured to provide a signal corresponding to at least one of the velocity of the movable member and a force applied to the movable member by a human subject; and

a controller configured to control the force applied to the movable member by the force-generating device based, at least in part, on the signal and a haptic equation relating the force and velocity.

22. The apparatus of claim 21, wherein:

the movable member comprises a conveyor.

23. The apparatus of claim 21, wherein:

the haptic equation relates the velocity to a time integral of the force.

24. The apparatus of claim 21, wherein:

the haptic equation relates the velocity to a time integral of a square of the velocity.

25. The apparatus of claim 21, including:

a restraint adapted to react a force applied by a human subject.

26. The apparatus of claim 25, wherein:

the sensor determines a force applied to the restraint.

27. The apparatus of claim 21, wherein:

the force-generating device comprises a brake.

28. The apparatus of claim 27, including:

a motor operably coupled to the movable member, the controller configured to control the motor based on a haptic equation relating the force and velocity.